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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,194	09/14/2000	Kent D. Benson	06269-020001	2401

26161 7590 09/20/2004

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EXAMINER	
DUONG, FRANK	
ART UNIT	**PAPER NUMBER**
2666	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/662,194	BENSON ET AL.	
	Examiner	Art Unit	
	Frank Duong	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-97* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-97* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4-5*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is a response to the communication dated 09/14/00. It is noted the application as original filed has introduced two claims 86 (see pages 176-177 of the specification). The USPTO has applied Rule 1.126 to renumber the second claim 86 into 97. Thus, claims 1-97 are pending in the application.

Information Disclosure Statement

2. The information disclosure statements filed 01/16/01 and 01/29/01 comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. They have been considered and placed in the application file.

Claim Objections

3. Claims 43 and 77 are objected to because of the following informalities:

As per claim 43, its dependency is questionable because it is an apparatus claim; however, it depends from claim 41, a method claim. Claim 43 should be amended to depend from claim 42.

As per claim 77, its dependency is questionable because it is an apparatus claim; however, it depends from claim 26, a method claim. Claim 77 should be amended to depend from claim 76.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 42, 46-82, 85-87 and 97 are rejected under 35 U.S.C. 112, first paragraph, as based on a single means claim ("circuitry"). A single means claim which covered every conceivable means for achieving the stated purpose was held noneabling for the scope of the claim because the specification disclosed at most only those means known to the inventor. See *In re Hyatt, 708 F.2d 712, >714-715, <218 USPQ 195>, 197< (Fed. Cir. 1983).*

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Siu (USP 6,246,687).

Regarding **claim 1**, in accordance with Siu reference entirety, Siu discloses method of allocating bandwidth to data traffic flows for transfer through a network device, comprising:

allocating bandwidth to a committed data traffic flow based on a guaranteed data transfer rate and a queue size of the committed data traffic flow in the network device (*Fig. 3; 303 and col. 4, lines 46-59*); and

allocating bandwidth to uncommitted data traffic flows using a weighted maximum/minimum process (*Fig. 3; 301 and col. 4, lines 12-34 and Fig. 4 and col. 5, lines 5-65*)..

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Siu further discloses wherein the weighted maximum/minimum process allocates bandwidth to the uncommitted data traffic flows in proportion to weights associated with the uncommitted data traffic flows (*Fig. 4 and col. 5, lines 16-48*).

Regarding **claim 3**, in addition to features recited in base claim 2 (see rationales discussed above), Siu further discloses wherein the weighted bandwidth to the maximum/minimum process increases uncommitted data traffic flows in accordance the weights associated with the uncommitted data traffic flows until at least one of the uncommitted data traffic flows reaches a maximum bandwidth allocation (*col. 5, lines 22-47*).

Regarding **claim 4**, in addition to features recited in base claim 3 (see rationales discussed above), Siu further discloses wherein the weighted maximum/minimum

process allocates remaining bandwidth remaining uncommitted data traffic flows based on weights associated with the remaining uncommitted data traffic flows (*col. 5, lines 36-48*).

Regarding **claim 5**, in addition to features recited in base claim 1 (see rationales discussed above), Siu further discloses wherein the bandwidth comprises data cell slots (*col. 3, line 53 and thereinafter*).

Regarding **claim 6**, in addition to features recited in base claim 1 (see rationales discussed above), Siu further discloses wherein the bandwidth is allocated to the data traffic flows in discrete time intervals (*col. 4, lines 9-10*).

6. Claims 7-97 are rejected under 35 U.S.C. 102(e) as being anticipated by Hou et al (USP 6,515,965) (hereinafter "Hou").

Regarding **claim 7**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth (col. 3, line 66; GMM rate allocation) to data flows (*S1, S2 and S3*) passing through a network device (*Fig.2; 201, 202 or 203*), each of the data flows having an associated weight, comprising:

increasing an amount of bandwidth to the data flows in proportion to the weights of the data flows until one port through the network device reaches a maximum value (PCR) (*col. 5, lines 23-31*);

freezing the amounts of bandwidth allocated to the data flows in the one port (*col. 5, lines 34-44*); and

increasing the amount bandwidth to remaining data flows passing through the network device in proportion the weights of the remaining data flows (*col. 5, lines 45-53*).

Regarding **claim 8**, in addition to features recited in base claim 7 (see rationales discussed above), Hou further discloses increasing the amount of bandwidth to the remaining data flows until another port through the network device reaches the network maximum value (Fig. 3; steps 305-307); freezing the amounts of bandwidth allocated to the data flows the other port (Fig. 3; step 310); and increasing the amount of bandwidth to remaining data flows passing through the network device in proportion the weights of the remaining data flows (*Fig. 3; step 304-307 and 309*).

Regarding **claim 9**, in addition to features recited in base claim 7 (see rationales discussed above), Hou further discloses assigning one or more of the data flows a minimum bandwidth, wherein the amount of bandwidth allocated to the one or more data flows is increased relative to the minimum bandwidth (MCR) (*col. 5, lines 16-17*).

Regarding **claim 10**, in addition to features recited in base claim 7 (see rationales discussed above), Hou further discloses wherein the bandwidth is allocated to the data flows in discrete time intervals (*col. 5, line 25*).

Regarding **claim 11**, in accordance with Siu reference entirety, Hou discloses a method of allocating bandwidth to data flows passing through a network device, comprising:

allocating a predetermined amount of bandwidth to one or more of the data flows (*col. 5, lines 16-33*); and

distributing remaining bandwidth to remaining data flows (*col. 5, lines 34-53*).

Regarding **claim 12**, in addition to features recited in base claim 11 (see rationales discussed above), Hou further discloses wherein the remaining bandwidth is distributed to the remaining data flows using weighted maximum/minimum process (*col. 5, lines 54-57*).

Regarding **claim 13**, in addition to features recited in base claim 12 (see rationales discussed above), Hou further discloses wherein the weighted maximum/minimum process comprises:

increasing an amount of bandwidth to the remaining data flows proportion data flows until one to weights associated with the remaining port through the network device reaches a maximum value (PCR) (*Fig. 3; steps 305-307*).

Regarding **claim 14**, in addition to features recited in base claim 12 (see rationales discussed above), Hou further discloses wherein the weighted maximum/minimum process comprises:

freezing the amounts of bandwidth allocated to the data flows in the one port (*col. 5, lines 34-44*); and

increasing the amount bandwidth to still remaining data flows passing through the network device in proportion the weights of the remaining data flows (*col. 5, lines 45-53*).

Regarding **claim 15**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth to data flows passing through a network device (*Fig. 1; element 201, 202 or 203*), comprising:

determining a character of the data flows (col. 4, lines 41-67); and

allocating bandwidth to the data flows accordance with the character of the data flows; wherein the bandwidth is allocated data flows according to which data flows have a highest probability of using the bandwidth (col. 5, lines 11-57).

Regarding **claim 16**, in addition to features recited in base claim 15 (see rationales discussed above), Hou further discloses wherein the character of the data flows includes peak cell rate, likelihood of bursts, and/or average cell rate (*col. 4, lines 56-67*).

Regarding **claim 17**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth to data flows passing through a network device (*Fig. 1; element 201, 202 or 203*), comprising: allocating the bandwidth using a weighted maximum/minimum process (*col. 5, lines 11-57*).

Regarding **claim 18**, in addition to features recited in base claim 17 (see rationales discussed above), Hou further discloses wherein the weighted maximum/minimum process comprises:

assigning weights to the data flows (col. 5, lines 16-17); and

allocating bandwidth to the data flows according to the weights (col. 5, lines 17-57).

Regarding **claim 19**, in addition to features recited in base claim 18 (see rationales discussed above), Hou further discloses wherein allocating the bandwidth according to the weights comprises: increasing an amount of bandwidth allocated to each data flow proportion to freezing the amount of bandwidth allocated to a data a

weight assigned the data flow; and flow when either (i) an input port or an output port of the network device *(see Figs. 8-9 for the connection of devices*) reaches a maximum utilization, or (ii) the data flow reaches a maximum bandwidth (PCR) (Fig.3; step 307) (*col. 5, lines 45-53*).

Regarding **claim 20**, in addition to features recited in base claim 19 (see rationales discussed above), Hou further discloses further comprising: increasing an amount of bandwidth to remaining data flows passing through another input port or output port reaches a maximum utilization, the network device until either the network device one of the remaining data flows reaches a maximum bandwidth (PCR) (col. 5, lines 45-53); freezing (saturating) an amount of bandwidth allocated to the remaining data flow that has reached a maximum bandwidth (PCR) or the remaining data flow passing through an input or output port reached that has reached a maximum utilization (col. 5, lines 34-44); and increasing the amount of bandwidth to still remaining data flows passing through the network device in proportion to weights (MCRs) associated with the remaining data flows (col. 5, lines 5, lines 23-33).

Regarding **claim 21**, in addition to features recited in base claim 20 (see rationales discussed above), Hou further discloses wherein, after all of the data flows passing through the network device are frozen, the method further comprises: distributing remaining bandwidth at an output port to data flows passing through the output port (*col. 5, lines 39-42*).

Regarding **claim 22**, in addition to features recited in base claim 20 (see rationales discussed above), Hou further discloses wherein after all of the data flows

passing through the network device are frozen, method further comprises: distributing remaining bandwidth at an output port to in proportion to data flows passing weights (MCRs) of the data through the output port flows passing through the output port (col. 5, lines 39-42).

Regarding **claim 23**, in addition to features recited in base claim 20 (see rationales discussed above), Hou further discloses wherein, after all of the data flows passing through network device are frozen, the method further comprises: distributing remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth (*col. 5, lines 17-33*).

Regarding **claim 24**, in addition to features recited in base claim 17 (see rationales discussed above), Hou further discloses wherein the bandwidth is allocated in discrete time intervals (*col. 5, line 25*).

Regarding **claim 25**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth to data flows (*col. 4, lines 25-26; sessions associated with S1-S3*) through a network device (*Fig. 2; 201, 202 or 203*), comprising:

allocating bandwidth to the data flows using a weighted max/min process (*col. 5, lines 1-54*);

wherein an amount of bandwidth allocated data flows passing through an input port the network device is greater than an amount of data that can pass through the input port of the network device (*col. 4, lines 41-67*).

Regarding **claim 26**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth to data flows (*col. 4, lines 25-26; sessions associated with S1-S3*) through a network device (*Fig. 2; 201, 202 or 203*), comprising:

allocating bandwidth to the data flows passing through input ports of the network device *(see Figs. 8-9 for the connection of devices*) using a weighted max/min process (*col. 5, lines 1-54*).

Regarding **claim 27**, in addition to features recited in base claim 26 (see rationales discussed above), Hou further discloses wherein allocating the bandwidth according to the weights comprises:

increasing bandwidth allocating to data flows passing through each input port in proportion to a weight assigned to the data flow passing through the input port (*col. 5, lines 23-33*); and

freezing an amount of bandwidth allocated to a data flow passing through an input port when either (i) the input port reaches a maximum utilization or (ii) the data flow reaches a maximum bandwidth (PCR) (*Fig.3; step 307*) (*col. 5, lines 45-53*).

Regarding **claim 28**, in addition to features recited in base claim 27 (see rationales discussed above), Hou further discloses continuing to increase the bandwidth allocated to non-frozen data flows in proportion to weights of the data flows until an amount of bandwidth is frozen at all of the data flows (*col. 5, lines 34-42*).

Regarding **claim 29**, in accordance with Hou reference entirety, Hou discloses a method of allocating bandwidth to data flows (*col. 4, lines 25-26; sessions associated with S1-S3*) through a network device (*Fig. 2; 201, 202 or 203*), comprising:

allocating bandwidth to the data flows passing through output ports of the network device *(see Figs. 8-9 for the connection of devices*) using a weighted max/min process (*col. 5, lines 1-54*).

Regarding **claim 30**, in addition to features recited in base claim 29 (see rationales discussed above), Hou further discloses wherein allocating the bandwidth according to the weights comprises:

increasing bandwidth allocating to data flows passing through each output port in proportion to a weight assigned to the data flow passing through the output port; and

freezing an amount of bandwidth allocated to a data flow passing through an output port when either (i) the output port reaches a maximum utilization or (ii) the data flow reaches a maximum bandwidth (PCR) (*Fig.3; step 307*) (*col. 5, lines 45-53*).

Regarding **claim 31**, in addition to features recited in base claim 30 (see rationales discussed above), Hou further discloses continuing to increase the amount of bandwidth allocated to non-frozen data flows proportion to weights of the data flows until the amount of bandwidth allocated to data flows is frozen (*col. 5, lines 40-42*).

Regarding **claim 32**, in addition to features recited in base claim 31 (see rationales discussed above), Hou further discloses wherein maximum values assigned to each data flow are based on the bandwidth allocations (*col. 4, line 39 and col. 5, lines 45-54*).

Regarding **claim 33**, in addition to features recited in base claim 31 (see rationales discussed above), Hou further discloses wherein, after the amount of bandwidth assigned to all output ports frozen, the method further comprises: distributing

remaining bandwidth at an output port to data flows passing through the output port (col. 5, lines 51-54).

Regarding **claim 34**, in addition to features recited in base claim 30 (see rationales discussed above), Hou further discloses wherein, after the amount of bandwidth assigned to all output ports is frozen, the method further comprises: distributing remaining bandwidth at an output port to data flows passing through the output port proportion to weights of the data flows (col. 5, lines 34-54).

Regarding **claim 35**, in addition to features recited in base claim 30 (see rationales discussed above), Hou further discloses wherein after of the data flows passing through the network device are frozen, the method further comprises: distributing remaining bandwidth at an output port to data flows passing through the output port according to which data flows have a highest probability of using the bandwidth (col. 5, lines 34-35).

Regarding **claim 36**, in addition to features recited in base claim 26 (see rationales discussed above), Hou further discloses wherein the bandwidth is allocated in discrete time intervals (*col. 5, line 25*).

Regarding **claim 37**, in addition to features recited in base claim 26 (see rationales discussed above), Hou further discloses allocating bandwidth to committed data traffic based on a guaranteed data transfer rate (MCR and PCR) (col. 4, lines 64-67).

Regarding **claim 38**, in addition to features recited in base claim 37 (see rationales discussed above), Hou further discloses wherein bandwidth is allocated to

the committed data traffic in response a request for bandwidth such that any request that is less than equal to the guaranteed data transfer rate (MCR) is granted. (*col. 5, lines 1-54*).

Regarding **claim 39**, in addition to features recited in base claim 26 (see rationales discussed above), Hou further discloses wherein: the bandwidth is allocated to uncommitted data traffic and, for committed data traffic, bandwidth is allocated based on a guaranteed transfer rate; and remaining bandwidth, allocated to the committed data traffic, allocated to the uncommitted data traffic (col. 5, lines 1-54).

Regarding **claim 40**, in addition to features recited in base claim 19 (see rationales discussed above), Hou further discloses allocating a predetermined amount of bandwidth to one or more of the data flows; and distributing remaining bandwidth to non-frozen remaining data flows by: increasing an amount of bandwidth allocated to each remaining data flow in proportion to a weight assigned to the remaining data flow; and freezing the amount of bandwidth allocated to a remaining data flow when either an input port or an output port of the network device reaches a maximum utilization, or the remaining data flow reaches a maximum bandwidth (col. 5, lines 1-54).

Regarding **claim 41**, in addition to features recited in base claim 37 (see rationales discussed above), Hou further discloses wherein bandwidth is allocated to the committed data traffic in response to a request for bandwidth such that any request that is greater than the guaranteed data transfer rate is granted at the guaranteed rate (col. 4, lines 64-67 and col. 5, lines 1-54).

Claims 42-73 and 97 call for an apparatus mirror claims 1-41. They are rejected by the same rationales as discussed above.

Regarding **claim 83**, in accordance with Hou reference entirety, Hou discloses a method of transferring data traffic flows through a network device, comprising transferring a committed data traffic flow through the network device using a guaranteed bandwidth (col. 5, lines 1-21); determining an amount bandwidth that was used during previous data traffic flow transfer (col. 5, lines 26-28); and allocating bandwidth in the network device to uncommitted data traffic flows based on the amount of bandwidth that was used during the previous data traffic flow transfer (col. 5, lines 34-54).

Regarding **claim 84**, in addition to features recited in base claim 83 (see rationales discussed above), Hou further discloses wherein allocating comprises: determining a difference between the amount of bandwidth that was used during the previous data traffic flow transfer and an amount of available bandwidth (col. 5, lines 26-28); and allocating the difference in bandwidth the uncommitted data traffic flows (col. 5, lines 34-54).

Claims 85-86 call for an apparatus of claim 83-84. They are rejected by the same rationales as discussed above.

Claims 87-96 call for computer programs of claims 1-41. They are rejected by the same rationales discussed above.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Charny et al (USP 6,072,772).

Sui et al (USP 6,359,861).

Dunffield et al (USP 6,452,933).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (571) 272-3164. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank Duong
Examiner
Art Unit 2666

September 15, 2004